A' cont.

a containment system for aligning the products of the nuclear reaction such that the particles move in approximately the same direction, produce a jerk or oscillation in the motion of the target nuclei and thereby generate gravitational waves,

Sub B' cont.

2. A device according to claim 1 in which the plurality of target nuclei are contained in a superconducting medium.

3. A device according to claim 1 in which the plurality of target nuclei comprises a gas.

4. A device according to claim 3 wherein the gas includes electron gas.

5. A device according to claim 1 in which the plurality of target nuclei comprises a fluid.

6. A device according to claim 5 in which the fluid is a superconducting fluid.

7. A device according to claim 1 in which the plurality of target nuclei are contained in an electromagnetic field.

8. A device according to claim 7 in which the electromagnetic field is external to the plurality of target nuclei.

9. A device according to claim 7 in which the electromagnetic field is ferromagnetic.

10. A device according to claim 7 in which the electromagnetic field is internal to the plurality of target nuclei.

A' cont.

11. A device according to claim 10 in which the electromagnetic field comprises intermolecular forces.

SUB B' cont.

12. A device according to claim 1 in which the plurality of target nuclei are aligned in a spin-polarized state.

13. A device according to claim 1 in which the source of particles for producing nuclear-reaction products is a pulsed particle beam.

14. A device according to claim 13 in which the particles comprising the particle beam are photons.

15. A device for generating gravitational waves utilizing nuclear reactions to produce physical motion of submicroscopic particles.

16. A gravitational wave generating device comprising:

a plurality of target energizable elements,

a plurality of energizing elements that act on the energizable elements and generate gravitational waves, and

a computer controlled logic system operatively connected to the energizing elements to control the action of the energizing elements.

17. A device according to claim 16 in which the energizable elements are energized to produce a third time derivative of the motion of the energizable elements or a jerk.

18. A device according to claim 16 in which the energizable elements are energized to produce a harmonic oscillation.

Cont.

19. A device according to claim 16 in which the energizable elements are molecules.

Sub B' Cont.

20. A device according to claim 16 in which the energizable elements are atoms.

21. A device according to claim 16 in which the energizable elements are atomic nuclei.

22. A device according to claim 16 in which the energizable elements are nuclear particles.

23. A device according to claim 16 in which the energizing elements are an anisotropic particle beam.

24. A device according to claim 16 in which the energizing elements are an isotropic particle beam.

25. A device according to claim 16 in which the energizing elements create a multiquantum vibrational event for the energizable elements on a subpicosecond time scale and generate gravitational waves.

26. A device according to claim 23 in which the beam particles collide with the energizable elements and produce a jerk or oscillation motion and generate gravitational waves.

27. A device according to claim 26 in which the beam particles collide with the energizable elements to produce a nuclear reaction.

28. A device according to claim 16 in which the energizing elements are microwaves.

A' cont.

29. A device according to claim 16 in which the energizing elements are one or more magnetic fields.

Sub B' Cont.

30. A device according to claim 16 in which the energizing elements are one or more electric fields.

31. A device according to claim 16 in which the energizable elements are aligned.

32. A device according to claim 16 in which the energizing elements move in step to define a gravitational-wave front and energize the energizable elements in sequential order to generate and accumulate gravitational-wave energy as the gravitational-wave front progresses.

33. A device according to claim 16 in which the energizing elements are photons of a laser.

34. A device according to claim 16 in which the energizing elements are electrons.

35. A device according to claim 16 in which the energizing elements are protons.

36. A device according to claim 16 in which the energizing elements are neutrons.

37. A device according to claim 16 in which the energizing elements are nuclear particles.

38. A device according to claim 16 in which the energizing elements are atomic nuclei.

Cont.

39. A device according to claim 16 in which the energizing elements are molecules.

40. A device according to claim 39 in which the molecules are ionized.

Sub B' Cont.

41. A device according to claim 16, in which the energizing elements are current-carrying coils.

42. A device according to claim 16, in which the energizable elements are one or more permanent magnets.

43. A device according to claim 16, in which the energizable elements are one or more electromagnets.

44. A device according to claim 16, in which the energizing elements are current-carrying electrical conductors.

45. A device according to claim 16, in which the energizable elements are current-carrying electrical conductors.

46. A gravitational wave detection device in which collector elements are interrogated in sequence according to an expected gravitational wave frequency in order to be a tuned gravitational wave receiver.

47. A device according to claim 46 in which the interrogations continue as the gravitational wave phase is determined and locked on by a control computer.

48. A device according to claim 46 in which the collector elements are transducers.

Cont.

49. A device according to claim 48 in which the transducers are parametric transducers.

Sub B' Cont.

50. A device according to claim 46 in which the collector elements are capacitors.

51. A device according to claim 46 in which the collector elements are harmonic oscillators.

52. A device according to claim 46 in which the collector element's signal can be measured by a superconducting quantum interference device (SQUID).

53. A device according to claim 46 in which the signal from the collector elements are sensed using quantum non-demolition (QND) techniques.

54. A device according to claim 32 in which the gravitational waves comprising the wave front are coherent.

55. A device according to claim 46 in which the collector elements are interrogated in a pattern according to an expected incoming gravitational wave direction in order to achieve directivity in GW reception.

56. A device according to claim 16 in which the energizable elements are energized in a pattern in order to achieve directivity in gravitational wave transmission.

57. A device according to claim 46 in which the directivity is changed over time in order to scan for gravitational wave transmissions.

Cont. 58. A device according to claim 56 in which the directivity is changed over time in order to control the direction of the gravitational wave transmissions.

Sub B1 Cont. 59. A device according to claim 56 in which the energizing elements are energized in a pattern that will transmit gravitational waves to a radiating gravitational wave transmitter in order to establish a GW communications source.

60. A device according to claim 16 in which the energizable elements are harmonic oscillators.

61. A device according to claim 46 in which the collector elements are an array of passive element sets or subsets.

62. A device according to claim 61 in which the collector element sets or subsets are disposed in a spherical array.

63. A device according to claim 62 in which the spherical array of collector element sets or subsets comprises a plurality of piezoelectric crystals spread evenly over the surface of a sphere.

64. A device according to claim 16 in which the energizable elements are capacitors.

65. A device according to claim 16 in which the energizable elements are an array of passive element sets or subsets.

66. A device according to claim 65 in which the energizable element sets or subsets are disposed in a spherical array.

Cont. 67. A device according to claim 66 in which the spherical array comprises piezoelectric crystals spread evenly over the surface of a sphere.

Sub B' Cont. 68. A device according to claim 66 in which the energizable element sets or subsets comprise spherical piezoelectric crystals.

69. A device according to claim 68 in which electrodes are spread evenly over the surface of the piezoelectric crystals and operatively connected to a power source.

70. A device according to claim 62 in which the collector element sets or subsets comprise spherical piezoelectric crystals.

71. A device according to claim 70 in which electrodes are spread evenly over the surface of the piezoelectric crystals and operatively connected to a computer.

72. A device according to claim 42 in which the permanent magnets are submicroscopic.

73. A device according to claim 43 in which the electromagnets are submicroscopic.

74. A device according to claim 46 in which the collector elements are submicroscopic.

75. A device according to claim 46 in which the tuned gravitational wave receiver receives gravitational waves refracted by a medium positioned in front of the gravitational-wave receiver.

Cont.

76. A device according to claim 75 in which the medium is a superconducting medium.

Sub B1 Cont.

77. A device according to claim 75 including a lens for concentrating or focusing the gravitational waves.

78. A device according to claim 75 including a series of gravitational-wave refracting media for concentrating or focusing the gravitational waves.

79. A device according to claim 16 in which a refractive medium concentrates or focuses the gravitational waves emitted by the gravitational wave generator.

80. A device according to claim 46 in which the gravitational wave frequency is generated by an extra terrestrial, astrophysical event.

81. A device according to claim 56 in which the pattern produces constructive interference among some of the gravitational waves.

82. A device according to claim 56 in which the pattern produces destructive interference among some of the gravitational waves.

83. A device according to claim 16, in which the energizable elements are piezoelectric crystals.

84. A device according to claim 16, in which the energizable elements are nanomachines.

85. A device according to claim 84 in which the nanomachines are harmonic oscillators.

Cont. 86. A device according to claim 84 in which the nanomachines are nanomotors.

87. A device according to claim 84 in which the nanomachines are solenoids.

SUB B' Cont. 88. A device according to claim 84 in which the nanomachines are microelectromechanical systems (MEMS).

89. A gravitational wave communications device comprising:

a plurality of target nuclei aligned in a constrained state,

a source of submicroscopic particles directed at the target nuclei,

a computer-controlled logic system operatively connected to the particle source for selectively propelling the particles toward the target nuclei to produce a nuclear reaction,

a containment system for aligning the products of the nuclear reaction such that the particles move in approximately the same direction, produce a jerk or oscillation in the motion of the target nuclei and thereby generate gravitational waves, and

a transmitter operatively connected to the containment system for modulating the gravitational waves.

90. A device according to claim 89 wherein the transmitter includes a modulator.

91. A device according to claim 90 in which the modulator imparts information to the gravitational waves.

92. A device according to claim 91 including an antenna connected to the modulator for directing the modulated gravitational waves to a remote location.

Cont. 93. A device according to claim 92 including a detector at a remote location for receiving the modulated gravitational waves.

Sub B, Cont. 94. A device according to claim 93 including a demodulator connected to the detector.

95. A device according to claim 94 including a presentation device connected to the demodulator.

96. A gravitational wave communications device comprising:

a gravitational wave generator for producing gravity waves,

a modulator connected to the generator for imparting information to the gravity waves,

a detector for receiving the modulated gravity waves, and

a demodulator for extracting the information from the gravitational waves and delivering it to a presentation device.

97. A device according to claim 16 in which the energizing elements are antiprotons.

98. A device according to claim 16 in which the energizable elements are antiprotons.

99. A gravitational wave propulsion system comprising:

a gravitational wave generator for producing coherent gravitational waves,

a housing for the gravitational wave generator for channeling and directing the gravitational waves in a direction opposed to the direction of propulsion, and

refractive control elements for altering the direction of the gravitational waves.

Cancel

100. A gravitational wave propulsion system comprising:

a gravitational wave generator for producing coherent gravitational waves,

a housing for the gravitational wave generator for channeling and directing the gravitational waves in a direction opposed to the direction of propulsion, and

refractive control medial for focusing the gravitational waves.

Sub B' Cont.

101. A gravitational wave focusing system comprising:

a source of gravitational waves,

a first medium for transmitting said gravitational waves, and

a second medium interposed in the direction of travel of the gravitational waves for reducing the speed of transmission therein.

102. A device according to claim 101 in which the second medium is a superconductor.

a2

103. (New) A device according to claim 22 in which the nuclear particles are electrons.

Sub B' Cont.

104. (New) A device according to claim 16 in which the energizable elements are enveloped in a dielectric.

105. (New) A device according to claim 104 in which the dielectric has a spherical form.

106. (New) A device according to claim 16 in which the energizing elements are sources of electromagnetic radiation.

Sub B1 A2 cancel

107. (New) A device according to claim 16 in which the energizable elements are submicroscopic particles.

REMARKS

Entry of the foregoing claims and examination of said claims is requested at the time of examination of the application as filed and amendment preliminarily.

Respectfully submitted,

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